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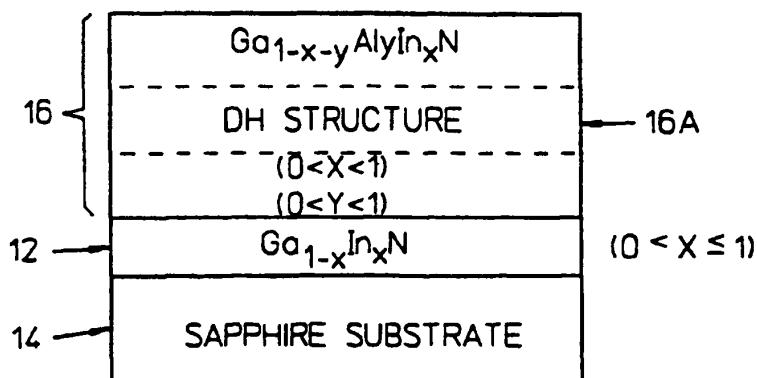
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### (54) Light emitting diode

(57) A light emitting diode (10) having an efficient blue or green light emission is obtained by growing a buffer layer (12) composed of an indium gallium nitride compound-semiconductor buffer on a sapphire substrate (14). A layer of gallium aluminum indium nitride compound-semiconductor (16A), which serves as the light emitting layer or active layer, is formed over the buffer layer (12). The light emitting layer (16A) has a

similar indium content as the buffer layer (12) to match more closely the lattice constants of the layers. The lattice defects between the buffer layer (12) and the light emitting layer (16A) are decreased because the addition of indium improves the crystalline quality of the layers. The blue or green light emitting property is further improved due to the enhanced crystalline quality of the light emitting layer (16A).

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FIG .3



## **EUROPEAN SEARCH REPORT**

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	PATENT ABSTRACTS OF JAPAN vol. 017, no. 640 (E-1465), 26 November 1993 & JP 05 206513 A (SHARP CORP), 13 August 1993, * abstract * ---	1,4	H01L33/00
A	PATENT ABSTRACTS OF JAPAN vol. 018, no. 080 (E-1505), 9 February 1994 & JP 05 291618 A (ASAHI CHEM IND CO LTD), 5 November 1993, * abstract * ---	1,4,6	
D,A	US 5 290 393 A (NAKAMURA SHUJI) 1 March 1994 * page 1, line 1 - line 36 * * page 2, line 2 - line 16; figures 1,2 * ---	1	
P,X	US 5 432 808 A (HATANO AKO ET AL) 11 July 1995 * column 5, line 63 - column 6, line 40 * * column 13, line 54 - column 14, line 4 * ---	1,3,7	TECHNICAL FIELDS SEARCHED (Int.Cl.6) H01L
P,X	PATENT ABSTRACTS OF JAPAN vol. 096, no. 005, 31 May 1996 & JP 08 008185 A (FURUKAWA ELECTRIC CO LTD:THE), 12 January 1996, * abstract * -----	1,3,7	
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	23 April 1997	De Laere, A	
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone	T : theory or principle underlying the invention		
Y : particularly relevant if combined with another document of the same category	E : earlier patent document, but published on, or after the filing date		
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